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EXAMINER

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PAPER

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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte DEFENSE TECHNOLOGY CORPORATION OF AMERICA

Appeal 2008-3569
Application 10/674,047
Technology Center 3600

Decided: October 7, 2008

Before FRED E. McKELVEY, *Senior Administrative Patent Judge*, and
RICHARD E. SCHAFER and RICHARD TORCZON, *Administrative
Patent Judges*.

Opinion filed by TORCZON, *Administrative Patent Judge*.

DECISION ON APPEAL

STATEMENT OF THE CASE

Claims 14, 16, 18-23, 25-30, and 32 stand rejected under 35 U.S.C. § 103 (Ans. at 3-8). The appellant, Defense Technology Corporation of America, a subsidiary of Armor Holdings, Inc. (Defense Technology), seeks review under 35 U.S.C. § 134. We AFFIRM.

The examiner relies upon the following prior art in rejecting the claims (Ans. at 3):

Barr et al. ('824)	3,911,824	14 Oct. 1975
Barr ('038)	3,865,038	11 Feb. 1975
Klein	2004/0069177 A1	15 Apr. 2004

Claims 14, 16, 18-23, 25-30, and 32 are before us.

Claims 14 and 27 are independent claims.

Claims 16, 18-23, and 25-26 depend directly or indirectly from independent claim 14.

Claims 28-30 and 32 depend from independent claim 27.

The examiner held that the subject matter of claims 14, 16, 18-23, and 25-30 would have been obvious in view of Barr '824 and Klein (Ans. 3).

The examiner also held that the subject matter of claims 27 and 32 would have been obvious in view of Barr '824, Barr '038, and Klein (Ans. at 6).

In presenting its arguments on appeal, Defense Technology discusses only claims 14 and 27 in connection with the rejection based on Barr '824 and Klein. Accordingly, we treat independent claim 14 and its dependent claims 16, 18-23, and 25-26 as a group that stands or falls with claim 14. 37 C.F.R. § 41.37(c)(1)(vii).

In presenting its arguments on appeal, Defense Technology discusses only claim 27 in connection with the rejection based on Barr '824, Barr '038 and Klein. Accordingly, we treat independent claim 27 and its dependent claims 28-30 and 32 as a group that stands or falls with claim 27. 37 C.F.R. § 41.37(c)(1)(vii).

THE CLAIMED INVENTION

The claimed invention relates to non-lethal munition (Spec. at 1, l. 5). We reproduce from the specification Defense Technology's Figure 2 below:

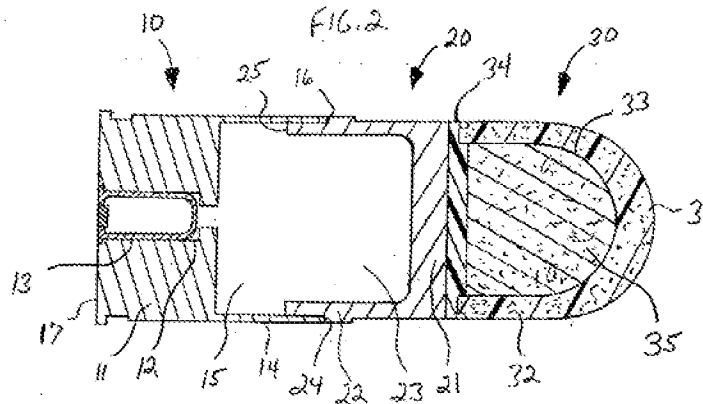


Figure 2 depicts a cross-section view of Defense Technology's non-lethal munition.

We select claim 14 as representative of the group of claims 16, 18-23, and 25-26. We reproduce claim 14 from the Appeal Brief claim appendix (drawing numerals and specification citation added) (Br. at 24):

A non-lethal impact munition comprising:
a projectile comprising a projectile nose 30 and a
projectile base 20, said projectile separably joined to a
propulsion shell 10 comprising propulsion means 13 to separate
[Spec. at 8, ll. 10-13] said projectile from said propulsion
shell 10;

said projectile nose 30 composed of a frangible, rigid, polymer foam material characterized in that said projectile nose 30 is crushed upon impact with a target in a manner that absorbs and dissipates energy of impact, said projectile nose 30 comprising a cavity 33;

wherein said projectile nose 30 has a rounded forward end 31 and a cylindrical wall 32, said cylindrical wall being thinner than said forward end, such that said thinner cylindrical wall 32 breaks prior to said forward end 31 upon impact to absorb and dissipate energy.

Defense Technology's Principal Arguments

Defense Technology and the examiner have a different interpretation of what constitutes a projectile nose and a projectile base within the scope of claim 14 (Br. at 15 and Ans. at 8). Defense Technology contends that the cited references do not describe a thinner cylinder wall that will break prior to the forward nose upon impact as required in claim 14 (Br. at 15).

Claim 27 describes a non-lethal munition like the invention of claim 14, but having additional limitations of a rear plug wall, a forward wall, a rearward extending annular insertion flange, and a propulsion cavity. According to Defense Technology, the examiner erred because the cited references do not describe these additional limitations (Br. at 16-17 and Br. at 19).

Defense Technology argues that there is no suggestion or motivation to combine the references that were used to reject the claims (Br. at 17).

Finally, Defense Technology urges that the combination of references used by the examiner will not result in a functional device (Br. at 19).

Issue

(1) Has Defense Technology shown that the examiner erred in rejecting the claims 14, 16, 18-23, and 25-30 as being directed to subject matter that would have been obvious in view of Barr '824 and Klein?

(2) Has Defense Technology shown that the examiner erred in rejecting the claims 27 and 32 as being directed to subject matter that would have been obvious in view of Barr '824, Barr '038, and Klein?

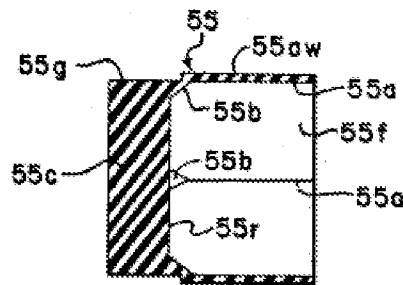


FIG. 3

Barr '824 Figure 3 depicts a longitudinal section of the base housing portion of the projectile.

5. Barr '824 discloses that when the weapon is fired the frangible cup 25 ruptures and sufficient pressure builds up within the cup 25 through burning of the propellant 26 such that the pusher disc 41, the sabots 31, and the projectile 51 are propelled from the barrel of the weapon (Barr '824, col. 2, ll. 21-29).

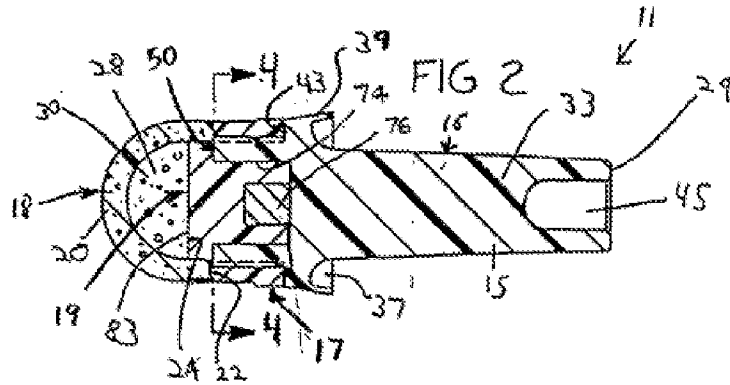
6. Barr '824 discloses that upon firing the weapon sufficient pressure buildup because the propellant 26 is being burned and the gases then pass through the port 23a and into an enlarged interior chamber (Barr '824, col. 2, ll. 21-29).

7. Barr '824's base housing 55 connects with the side walls to form a cavity, which has a thick rear wall 55r and a thin wall thickness at the corners 55a (Barr '824, col. 4, ll. 1-7).

8. Barr '824 discloses that the cartridge is crimped at the forward end of the case against the annular surface 31b (Barr '824, col. 2, l. 65 to col. 3, l. 1).

9. The Klein published application discloses non-lethal ammunition (Klein at 0001).

10. Klein's ammunition has a nose 18 preferably made from styrofoam material (Klein at 0050 and Klein FIG. 2 below).

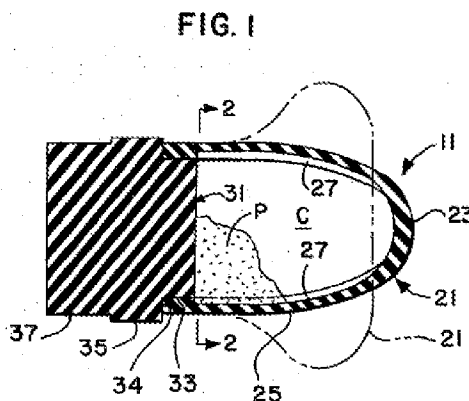


Klein Figure 2 depicts a cross-sectional view of the ammunition.

11. Klein discloses that upon impact the nose 18 will be breached and the chemical agent 28 within the cavity 20 will be dispersed (Klein at 0050).

12. The Barr '038 patent discloses ammunition projectiles that will rupture upon impact (Barr '038, col. 1, ll. 3-9).

13. Barr '038 discloses a base section 31 that has a rifling band 35 (Barr '038, col. 2, ll. 41-43, and Barr '038 FIG. 1, shown below).



Barr '038 Figure 1 depicts a longitudinal section view of the projectile.

14. Barr '038 discloses that the projectile 11 is mounted in, and fired from, a conventional cartridge having ignitable propellant (Barr '038, col. 3, ll. 7-11).

15. According to Defense Technology, a difference between the claimed invention and Barr '824 is that the claimed invention has a thinner cylindrical wall that breaks on impact, prior to the breaking of the forward end of the projectile (Br. at 15-16).

16. Another difference between the claimed invention and Barr '824 according to Defense Technology is that Barr '824 does not describe a rear plug wall, a forward wall, a rearward extending annular insertion flange, and a combined projectile and shell cavity as required in claim 27 (Br. at 16-17).

17. Another difference between the claimed invention and Barr '038 according to Defense Technology is that Barr '038 does not describe a rear plug wall, a rearward extending annular insertion flange, and a projectile cavity as required in claim 27 (Br. at 19).

18. It would be readily apparent to one of ordinary skill in the art that non-lethal ammunition provides a relatively low hazard to targeted personnel.

Principles of Law

Pending claims must be interpreted as broadly as their terms reasonably allow. *In re Am. Acad. of Sci. Tech. Ctr.*, 367 F.3d 1359, 1364 (Fed. Cir. 2004). Claim language is to be read in light of the specification as a person of ordinary skill in the art would interpret it. *Id.* An applicant seeking a narrower construction must either show why the broader construction is unreasonable or amend the claim to state expressly the scope intended. *In re Morris*, 127 F.3d 1048, 1057 (Fed. Cir. 1997).

In analyzing obviousness, the scope and content of the prior art must be determined, the difference between the prior art and the claim ascertained, and the ordinary level of skill in the art resolved. *Graham v. John Deere Co.*, 383 U.S. 1, 17 (1966). Many factors are relevant to whether teachings are properly combined, such as (1) the field of inquiry, (2) the subject matter of the references, (3) the extent to which they are in the same or related fields of technology, (4) the nature of the advance made by the applicant, and (5) the maturity and congestion of the field. *In re Johnston*, 435 F.3d 1381, 1385 (Fed. Cir. 2006).

Attorney's arguments in a brief cannot take the place of evidence. *In re Pearson*, 494 F.2d 1399, 1405 (CCPA 1974).

Analysis

Rejection of claims 14 and 27 in view of Barr '824 and Klein

Claim 14

Our analysis starts with claim construction. Defense Technology (Br. at 15) and the examiner (Ans. at 8) have different interpretations of what satisfies the "projectile nose" limitation. We give the contested limitation, its broadest reasonable interpretation in view of the specification. Defense Technology has not directed us to a definition of "projectile nose" in its specification. In the Appeal Brief, Defense Technology argues that the examiner erred in combining Barr '824's nose section 53, the base housing 55, and the cavity 57 to satisfy the projectile nose limitation (Br. at 15). Defense Technology urges that projectile nose should be interpreted to include only Barr '824's nose section 53. The examiner explains that the projectile nose limitation may also be satisfied by three parts that include

Barr '824's nose section 53, the base housing 55, and the cavity 57 for the payload P (Ans. at 3-4). Moreover, Defense Technology's claim 14 states that the "projectile nose has a rounded forward end and a cylindrical wall" (Br. at 24). Similar to the claimed invention, Barr '824 has a forward nose section 53, base housing 55 (cylinder wall), and a cavity 57 that receives the payload P (Findings 2 and 3). The examiner's interpretation that the nose section 53, the base housing 55, and the cavity 57 in Barr '824 satisfies the limitation, projectile nose, is reasonable. Defense Technology has not met its burden of showing that the examiner erred.

Next, we give the contested limitation, projectile base, its broadest reasonable interpretation. Claim 14 requires a projectile that includes a projectile base and a projectile nose (Br. at 24). Defense Technology argues that Barr '824's base housing 55 satisfies the projectile base limitation (Br. at 15). Defense Technology's argument is based on its interpretation that the projectile nose includes only the nose section 53 in Barr '824 (Br. at 15). As we concluded above, however, the combination of Barr '824's nose section 53, the base housing 55, and the cavity 57 satisfies the projectile nose limitation. According to the examiner, Barr '824's sabots 31 and pusher disc 41 satisfy the claim limitation "projectile base" (Ans. at 9, middle figure, an annotated version of Barr '824 Figure 2). Barr '824 describes that the sabots 31 and the pusher disc 41 are connected to the projectile 51 and are propelled together from the barrel of the weapon (Finding 5). Defense Technology has not met its burden of showing that the examiner erred in using Barr '824's sabots 31 and pusher disc 41 to satisfy the projectile base limitation.

Defense Technology argues that the claim limitation requiring a projectile nose having a thinner cylindrical wall "such that the thinner cylindrical wall breaks prior to the forward end upon impact" is not met in Barr '824 (Br. at 15). We understand the examiner to hold that Barr '824's weaker corner wall sections 55a satisfy this limitation (Ans. at 10). The weaker wall sections 55a occur at the corners of the cavity 57 in Barr '824 (Finding 4). The entire cylindrical wall does not have the same thickness in Barr '824 (Finding 7). Taking the broadest reasonable interpretation, we conclude that Barr '824's thin corners 55a satisfy the thinner cylinder wall limitation in claim 14.

Defense Technology argues that substituting the frangible nose 18 taught by Klein with the nose section 53 in Barr '824 would not result in a functional device (Br. at 16). Defense Technology states that the nose section 53 would not act as a piston causing the base housing 55 to rupture along one or more of its corners (Br. at 16). Defense Technology argues that without rupture of the base housing 55 dispersal of the payload P would be minimal (Br. at 16). Barr '824 describes the use of corners 55a that form weak zones that are easily ruptured on target impact (Findings 4 and 7). Defense Technology has the burden of producing evidence to support its argument that the combination of Klein's frangible nose 18 with the Barr '824 projectile 51 would result in a device that would not function. Defense Technology has not supplied any evidence in the record on appeal to support its argument (Br. at 28). Therefore, Defense Technology has not met its burden of showing that the examiner erred.

Defense Technology argues there is no suggestion or motivation to combine Klein with Barr '824 (Br. at 17). We find that all the references

used by the examiner deal with non-lethal ammunition (Findings 1 and 9). The goal of non-lethal ammunition is to deliver a payload while causing minimal damage to any person hit by the projectile (Finding 18). A person of ordinary skill in the art would have immediately recognized the benefit of using a frangible foam nose bullet that breaks upon impact, as taught by Klein (Findings 9-11). Defense Technology's claimed invention is in the same field of inquiry as the cited prior art. We conclude that Defense Technology has not shown that the examiner erred in combining the cited references.

Claim 27

In addition to the requirements of claim 14, Claim 27 adds the limitation "a rear plug wall joined to a cylindrical wall" (Br. at 26). Defense Technology argues that this limitation is not described in Barr '824 (Br. at 16). We give the contested limitation, a rear plug wall joined to a cylinder wall, its broadest reasonable interpretation in view of the specification. Defense Technology has not directed us to a specific definition of a rear plug wall. The examiner explains that the rear plug wall limitation is met by Barr '824's rear wall of the projectile nose (Ans. at 9, lower figure, an annotated version of Barr '824 Figure 3). Barr '824 describes a thick rear wall section 55r (rear plug wall) that is connected to thin side walls (cylindrical wall) (Finding 7). The examiner's interpretation, that Barr '824's rear wall of the projectile nose satisfies requirement for a rear plug wall joined to a cylinder wall, is reasonable. Defense Technology has not met its burden of showing that the examiner erred.

Defense Technology argues that Barr '824 does not satisfy the claim limitation "a forward wall joined to a cylindrical wall to define a projectile

cavity and a rearward extending annular insertion flange" as required in claim 27 (Br. at 17). The examiner explains that Barr '824's pusher disc 41 (forward wall), annular surface 31b (rearwardly extending annular insertion flange), and the enlarged interior chamber (shell cavity combined with projectile cavity) satisfy the claim limitation (Ans. at 9, middle figure, an annotated version of Barr '824 Figure 2 that is not numbered as Figure 2). We give the contested limitations together—the forward wall 21, the rearward extending annular insertion flange 25, and the shell cavity 15 combined with the projectile cavity 23—their broadest reasonable interpretation. In claim 27, the projectile base's forward wall is joined to cylindrical wall such that the combination defines the projectile cavity (Br. at 26). In Barr '824, when the weapon is fired the propellant gases enter into an interior chamber (cavity) and then propel the pusher disc 41, the sabots 31, and projectile nose together from the barrel of the weapon (Finding 5). Barr '824's pusher disc 41 defines the forward end of the enlarged interior chamber where sufficient pressure builds up to propel the projectile 51 (Findings 6). Claim 27 requires that the rearwardly extending annular insertion flange receives the shell rim (Br. at 26). Barr '824's annular surface 31b is similar to the rearwardly extending annular insertion flange 25 because the cartridge is crimped at the forward end of the case against the annular surface 31b (Finding 8). Defense Technology's claim 27 requires that the shell cavity and the projectile cavity are combined to form a single cavity (Br. at 26). Barr '824 describes an enlarged interior chamber where sufficient pressure builds up to propel the projectile (Finding 6). The examiner's rationale—that Barr '824's pusher disc 41 (forward wall), annular surface 31b (rearward extending annular insertion flange), and the enlarged

interior chamber (shell cavity combined with projectile cavity) satisfies the claim limitation—is reasonable. Defense Technology has not met its burden of showing that the examiner erred.

Rejection of claim 27 in view of Barr '824, Barr '038, and Klein

Defense Technology argues that Barr '038 does not describe a rear plug wall, a rearward extending annular insertion flange, and a projectile cavity as required in claim 27 (Br. at 19). The examiner explains that Barr '038 describes a forward wall (rear plug wall) (Ans. at 11 shown on annotated Barr '038 FIG. 1) and a rearward extending annular insertion flange (Ans. at 11 shown on annotated Barr '038 FIG. 1) that satisfies the claim requirements. Barr '038 does not disclose a particular propulsion shell (Ans. at 7). Barr '038 discloses that the projectile 11 can be mounted in, and fired from, a conventional cartridge having ignitable propellant in the cartridge (Finding 14). The examiner goes on to explain that even though Barr '038 does not disclose a projectile cavity as required in claim 27, Barr '824 does (Ans. at 7). The examiner indicates that Barr '824 has a combined shell cavity and projectile cavity (Ans. at 9 annotated Barr '824 FIG. 1). The examiner's rationale, that Barr '038's base section 31 and rifling band 35 satisfies the claim limitation of having a rear plug wall and rearward extending annular insertion flange 25, is reasonable (Finding 13). Additionally as we discussed above, Barr '824 describes a rear wall 55r (rear plug wall), an annular surface 31b (rearward extending annular insertion flange), and an enlarged interior chamber (shell cavity combined with projectile cavity) that satisfies the limitations (Findings 6-8). We conclude

that the combination of Barr '038 and Barr '824 satisfies the above limitations in claim 27.

Defense Technology argues there is no suggestion, or motivation, to combine Klein with the Barr '824 and Barr '038 references (Br. at 19). All the references used by the examiner deal with non-lethal ammunition (Findings 1, 9, and 12). As we previously stated, the goal of non-lethal ammunition is to deliver the payload while causing minimal damage to any person hit by the projectile (Finding 18). Defense Technology's claimed invention is in the same field of inquiry as the cited prior art. The ease of breaking up of a frangible foam projectile and the desire to have a non-lethal projectile that would not injure any targeted person would inspire a person of ordinary skill in the art to look to the related teachings of Klein, Barr '824, and Barr '038 to appreciate what they teach individually and together (Findings 1, 9-12, and 18). We conclude that Defense Technology has not shown that the examiner erred in combining the cited references.

Finally, Defense Technology argues that the combination of Barr '824, Barr '038, and Klein would not result in a functional device (Br. at 19). Our previous discussion above applies equally here—Defense Technology has not supplied evidence to show that the combination will not function (Br. at 28). Barr '824, Barr '038, and Klein all disclose non-lethal projectiles that disperse a payload upon impact (Findings 3, 11, and 12). We conclude that Defense Technology has not shown that the examiner erred.

CONCLUSION

Defense Technology has failed to show that the examiner erred in rejecting the claims over the prior art. Consequently, the rejection of all the pending claims under 35 U.S.C. § 103 is —

AFFIRMED

ack

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